Docket No.: HEINEMANN-3
Serial No.: 10/661,280

AMENDMENTS TO THE SPECIFICATION WITH MARKINGS TO SHOW
CHANGES MADE

Please change the title to read -- REAL-TIME MOTOR CONTROLLER WITH
ADDITIONAL DOWN-/UP-LOADABLE CONTROL FUNCTIONALITY --

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AMENDMENTS TO THE CLAIMS WITH MARKINGS TO SHOW CHANGES
MADE, AND LISTING OF ALL CLAIMS WITH PROPER IDENTIFIERS

1.   (Currently amended) A ~~controller, in particular a~~ drive controller <u>for a drive of</u>
<u>an electric machine</u>, comprising

a first functional block [[for]] <u>having</u> at least one permanently installed
controller function <u>for storing at least one basic real-time function for</u>
<u>controlling the drive</u>; and

a second functional block [[for]] <u>having</u> at least one dynamically loadable
controller function<u> for storing at least one additional real-time function for</u>
<u>controlling the drive</u>,

wherein the second functional block can be dynamically loaded or
dynamically overwritten with [[a]] <u>the at least one additional</u> real-time function
during the operation of the controller.

2.   (Currently amended) The controller of claim 1, ~~wherein in the first functional~~
~~block stores several real-time basic functions of the controller and the second~~
~~functional block stores at least one real-time additional function of the~~
~~controller, and~~ wherein during the operation or during processing of the <u>at</u>
<u>least one basic</u> real-time ~~basic~~ function, the <u>at least one additional</u> real-time
~~additional~~ function is dynamically loaded or dynamically overwritten or started
or executed in the second functional block without interrupting the <u>at least</u>
<u>one basic </u>real-time ~~basic~~ function.

3.   (Currently amended) The controller of claim 1, and further comprising a bus
link, wherein the <u>at least one additional</u> real-time ~~additional~~ function is loaded
via the bus link from a management automation system.

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4.   (Currently amended)   The controller of claim 1, wherein the <u>at least one</u> <u>additional</u> real-time ~~additional~~ function is loaded via an Internet connection.

5.   (Original)   The controller of claim 1, and further comprising a device for runtime monitoring.

6.   (Currently amended)   The controller of claim 5, wherein the runtime monitoring device determines a computing time required by the <u>at least one</u> <u>additional</u> real-time ~~additional~~ function, and wherein the <u>at least one</u> <u>additional</u> real-time ~~additional~~ function is terminated if the required computing time exceeds a predefined reference time.

7.   (Original)   The controller of claim 1, and further comprising a device for monitoring memory location access.

8.   (Currently amended)   The controller of claim 7, wherein the device for monitoring memory location access monitors memory addresses accessed by the <u>at least one additional</u> real-time ~~additional~~ function, and wherein the <u>at least one additional</u> real-time ~~additional~~ function is terminated if these memory addresses do not correspond to predefined reference memory addresses that are reserved for the <u>at least one additional</u> real-time <u>function</u> ~~additional functions~~.

9.   (Currently amended)   The controller of claim 7, wherein the device for monitoring memory location access administers a memory region with access rights for both the <u>at least one basic</u> real-time ~~basic~~ functions and the <u>at least one additional</u> real-time ~~additional~~ function, and wherein copies of variables of the <u>at least one basic</u> real-time <u>function</u> ~~basic functions~~ are stored at this memory region.

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10. (Currently amended) A method for operating a controller, in particular a drive controller for an electric machine, comprising the steps of:

executing on the drive controller at least one permanently installed controller function for storing a basic real-time function for controlling the electric machine a system, in particular a drive, and

dynamically loading or dynamically overwriting at least one additional real-time functions function during operation of the controller and during execution of the permanently installed controller function.

11. (Currently amended) The method of claim 10, wherein for controlling the drive of the electric machine, several basic real-time basic functions of the controller are executed, and wherein during the operation or execution of the basic real-time functions the basic function at least one additional real-time additional function is dynamically loaded or dynamically overwritten or started or processed without interrupting the real-time basic function functions.

12. (Currently amended) The method of claim 10, wherein a computing time required by the at least one additional real-time additional function is determined, and wherein the at least one additional real-time additional function is terminated if the required computing time exceeds a predefined reference time.

13. (Currently amended) The method of claim 10, wherein the memory addresses accessed by the at least one additional real-time additional function are monitored and wherein the at least one additional real-time additional function is terminated if these memory addresses do not correspond to predefined reference memory addresses reserved for at least one additional real-time function additional functions.

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REMARKS

The last Office Action of November 16, 2005 has been carefully considered. Reconsideration of the instant application in view of the foregoing amendments and the following remarks is respectfully requested.

Claims 1-13 are pending in the application. Claims 1-4, 6, and 8-13 have been amended. No claims have been canceled or added. An amendment to the specification has been made. No fee is due.

It is noted that the title is objected to because as being non-descriptive. The objection to the title of the invention has been addressed by replacing the previous title with a new title.

It is further noted that claims 2, 5 and 7 are objected to because of informalities. The objection to claim 2 has been addressed by amendments to claim 2. The objection to claims 5 and 7 is respectfully traversed as the MPEP explicitly states that "there is no set statutory form for claims." (MPEP 608.01(m)).

Claims 1-4, 6, and 8-13 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement.

Claims 1, 7 and 10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Tello (2003/0018892) in view of Melvin (US 5,754,424).

Claims 2 and 11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Tell and Melvin, as applied against claims 1 and 10, and further in view of Sampsell (US 6,256,714).

Claims 3-6 and 12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Tell and Melvin, as applied against claims 1 and 10, and further in view of Birzer (2002/0082720).

Claims 8 and 9 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Tell and Melvin, as applied against claims 1 and 10, and further in view of Stripf (US 6,263,487).

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REJECTION UNDER 35 U.S.C. §112, FIRST PARAGRAPH

Claims 1-4, 6, and 8-13 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. The Examiner noted that the terms "real-time function", "real-time basic function" and "real-time additional function" are not fully described in the specification. This rejection is respectfully traversed.

Applicant has amended the claims by replacing "real-time basic function" with "real-time basic function" and "real-time additional function" with "additional real-time function" to more clearly define that there are two different types of real-time functions, namely a "basic" real-time function and an "additional" real-time function. The "basic" real-time functions reside in the first controller, whereas the "additional" real-time functions are dynamically loadable functions residing in the second controller. The term "real-time" is commonly used in the relevant art, for example, to describe "any operating system where interrupts are guaranteed to be handled within a certain specified maximum time, thereby making it suitable for control of hardware in embedded systems and other time-critical applications." (see, for example, http://www.instantweb.com/foldoc/foldoc.cgi?Real-Time+Operating+System)

For example, paragraph [0021] of the specification clearly state that "the drive controller 1 can control the motor 2 in real-time." The "additional" real-time functions are described in detail in paragraph [0023], where it is stated as follows: "The drive controller 1 according to the invention can include a second functional block 9 for implementing these real-time additional functions in addition to the real-time basic functions. One or more real-time additional functions can be dynamically loaded into this functional block 9 as needed during the operation of the controller and hence during the execution of the real-time basic functions." These are only a few examples where the functionality of the functional blocks and the associated real-time functions are described. Applicant respectfully requests that the rejection of 1-4, 6, and 8-13 under 35 U.S.C. §112, first paragraph, be

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withdrawn.

Withdrawal of the rejection of the claims 1-4, 6, 8-13 under 35 U.S.C. §112, first paragraph is thus respectfully requested.

REJECTION UNDER 35 U.S.C. §103(a)

The office action refers to paragraphs 60, 137, and 206 in Tello as disclosing the features of claims 1 and 10, except for the dynamically loadable controller function as required by the claims.

Tello discloses a method and system for providing a secure boot process for a personal computer. Tello addresses the general aspect for setting up networking procedures if software needs to be downloaded. Tello also describes a security engine that is capable of running in stand alone mode, and includes code capable of initializing the computer (react to power-on or reset) and provide functions for encryption/decryption in real time and networking access (TPC/IP protocols), stating: "An encrypt/decrypt function can be achieved in real time and flow of data between the security kernel and operating system will be handle by the PCI bridge." (See Paragraphs 60, 137 und 206 cited in the office action).

As admitted in the office action, Tello fails to disclose a dynamically loadable controller function. Moreover, there is no suggestion in Tello how his disclosed method and system could be used to control an electric drive.

Melvin discloses analog variables in an operational system. The office action asserts that Melvin discloses in col. 21, line 59, to col. 22, line 29, a dynamically loadable controller function, which admittedly is not taught by Tello. Applicant has carefully reviewed the section referred to in the office action, but fails to recognize subject matter referring to such dynamically loadable controller function. While Melvin appears to disclose certain tuning capabilities of the controller by, for example, updating set-points, there is no mention of dynamically loading or dynamically overwriting an additional real-time function. The instant specification uses the term "function" commensurate with the accepted definition

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found, for example, in McGraw-Hill "Dictionary of Scientific and Technical Terms", 5th edition, defining a function as "a mathematical rule between two sets which assigns to each member of the first, exactly one member of the second." The advantages of having an additional real-time function is that not all control functionality, especially functionally that is used only occasionally or under special circumstances, has to be present in the controller for operating the machine.

For at least the reasons stated above, Applicant respectfully submits that Tello and Melvin, taken either alone or in combination, fail to teach or suggest a drive controller for an electric drive with a first functional block having at least one permanently installed controller function for storing at least one basic real-time function for controlling the electric machine, and a second functional block having at least one dynamically loadable controller function for storing at least one additional real-time function for controlling the electric machine, wherein the second functional block can be dynamically loaded or dynamically overwritten with the at least one additional real-time function during the operation of the controller, as recited in amended claim 1.

This rejection of claims 2 and 11 under 35 U.S.C. §103(a) as being unpatentable over Tell and Melvin applied against claims 1 and 10, and further in view of Sampsell (US 6,256,714) is respectfully traversed. Sampsell discloses managing memory usage for multiple application programs in personal computer systems which is completely different from the electric drive system of the instant application.

Moreover, as stated in M.P.E.P. §2143.01, the mere fact that references can be combined does not render the resultant combination obvious unless the prior art suggest the desirability of the combination. There is no suggestion in any of the cited references to temporarily download functions (functions are different from values) into a controller of an electric machine, such as a motor drive, wherein the functions are to be used only temporarily and/or in specific situations.

Applicant therefore submits that claims 1 and 10 are patentable over the art of record. Claims 2-9 and 11-13, which depend from claims 1 and 10, respectively,

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are then also patentable for at least the reasons that claims 1 and 10 are patentable.

Withdrawal of the rejection of claims 1-13 under 35 U.S.C. §103(a) and allowance thereof are thus respectfully requested.

CITED REFERENCES

Applicant has also carefully scrutinized the further cited prior art and finds it without any relevance to the newly submitted claims. It is thus felt that no specific discussion thereof is necessary.

It is noted that the Examiner has not made of record the German language references cited in the Information Disclosure Statement, filed on September 12, 2003 because no concise explanation of the references was given. Applicant respectfully disagrees and refers to page 4 of the Information Disclosure Statement. Therefore, it is applicant's contention that the Information Disclosure Statement, as filed on September 12, 2003 is proper, and the Examiner should have considered the cited prior art.

In addition, applicant noted that the Examiner also failed to make of record reference WO 01/23971, which was submitted with applicant's Second Information Disclosure Statement, filed on December 1, 2004. Please note that this reference is in English-language, and therefore should have been considered.

Accordingly, applicant submits herewith a new form PTO-1449. The Examiner is requested to initial the attached form PTO-1449 and to return a copy of the initialed document to the undersigned as an indication that the attached references have been considered and made of record.

CONCLUSION

Applicant believes that when reconsidering the claims in the light of the above comments, the Examiner will agree that the invention is in no way properly

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met or anticipated or even suggested by any of the references however they are considered.

In view of the above presented remarks and amendments, it is respectfully submitted that all claims on file should be considered patentably differentiated over the art and should be allowed.

Reconsideration and allowance of the present application are respectfully requested.

Should the Examiner consider necessary or desirable any formal changes anywhere in the specification, claims and/or drawing, then it is respectfully requested that such changes be made by Examiner's Amendment, if the Examiner feels this would facilitate passage of the case to issuance. If the Examiner feels that it might be helpful in advancing this case by calling the undersigned, applicant would greatly appreciate such a telephone interview.

Respectfully submitted,

By:_____
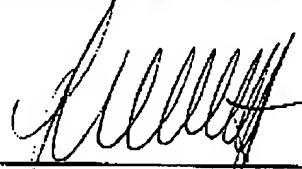
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